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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,603	12/17/2001	Laure Monconduit-Jegou	004900-209	4768

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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT PAPER NUMBER

1745

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/015,603

Applicant(s)

MONCONDUIT-JEGOU ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-16,18,19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,16,18,19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Response to Amendment***

This paper is in response to the amendment filed on 12/05/03. The applicants have overcome the objections, some of the 112 rejections and the art rejections. Refer to the foregoing amendment containing applicant's rebuttal arguments for more details. However, the claims are newly rejected over art as seen below. Therefore, the claims are finally rejected for the reasons of record.

### ***Election/Restrictions***

1. This application contains claims 6-15 drawn to an invention nonelected with traverse in Paper 07/11/03. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 4-5, 18 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claims 4-5, 18 and 21 are indefinite as they all depend from cancelled claims 2, 17 and 20, respectively. For purpose of prosecution, claims 4-5 has been construed as depending from claim 1, claim 18 from claim 16 and claim 21 from claim 19.

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***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 3-5, 16, 18-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakura 2002/0015890 and further in view of Maeda et al 2003/0113626.

The instant application is directed to an electrode and battery wherein the disclosed inventive concept comprises the specific electrode material.

With respect to claims 1, 16, 19:

Nakura discloses lithium secondary batteries comprising a positive electrode and a negative electrode, an electrolyte (SECTION 0012). It is disclosed that suitable materials as negative electrode active materials are lithium containing metal nitride such as  $\text{Li}_7\text{MnN}_4$  (SECTION 0006). *Thus, the molar amounts "x", "y" and 4 for N are within the claimed range.*

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*It is also noted that the lithium metal nitride material itself does encompass the very pnictide phase of the material.*

As to claims 4-5:

Nakura discloses the use of lithium containing metal nitride such as  $\text{Li}_7\text{MnN}_4$  (SECTION 0006). *Thus, the molar amount "y", in this instance, is 1.0.*

Nakura disclose an electrode material in lithium secondary batteries according to the foregoing. However, Nakura does not expressly disclose the specific element M belonging to the group IVa-Va of the periodic table in the formula.

Maeda et al disclose lithium secondary batteries using as active material for negative electrodes lithium nitride metal compounds represented by the formula  $\text{Li}_x\text{M}_y\text{N}_z$  wherein Li is lithium atom, M is metal, preferably at least one selected from Mn, Ti and V among others, and N is nitrogen (SECTION 0060).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to employ the specific element M belonging to the group IVa-Va of the periodic table of Maeda et al in the electrode containing a lithium metal nitride of Nakura et al as Maeda et al disclose that, at least, Ti and V, are suitable metals for inclusion in lithium nitride metal compounds. Accordingly, such lithium nitride metal compounds containing Ti or V provides an electrochemical active material appropriate for use in lithium secondary batteries because these compounds are capable of absorbing and desorbing lithium. *Furthermore, since Maeda et al do suggest the interchangeably use of Mn, Ti and V as well as their equivalency for substitution purposes in lithium nitride metal compounds, Maeda et al's teachings are found to be relevant and within the same field of endeavor.*

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8. Claims 1, 3-5, 16, 18-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al 2003/0113626 and further in view of Nakura 2002/0015890.

The instant application is directed to an electrode and battery wherein the disclosed inventive concept comprises the specific electrode material.

As to claims 1, 16 and 19:

Maeda et al disclose lithium secondary batteries comprising a positive electrode, a negative electrode and an electrolyte (SECTION 0071-0072) wherein the active material for the negative electrode can be lithium nitride metal compounds represented by the formula  $\text{Li}_x\text{M}_y\text{N}_z$  wherein Li is lithium atom, M is metal, preferably at least one selected from Ti, V and Mn, among other elements, and N is nitrogen; wherein  $1.0 \leq x \leq 7.0$ ,  $0 \leq y \leq 4.0$  and  $0.5 \leq z \leq 5.0$  (SECTION 0060). *It is noted that the lithium metal nitride material itself does encompass the very pnictide phase of the material.*

As to claims 3, 18 and 21:

Maeda et al disclose that the metal element M is selected from Ti, V and Mn, among other elements (SECTION 0060).

Maeda et al disclose a negative electrode for lithium secondary batteries according to the foregoing. However, Maeda et al does not expressly disclose the specific molar amounts within the claimed range.

With respect to claims 1, 16, 19:

Nakura discloses a lithium secondary battery comprising a positive electrode and a negative electrode, an electrolyte (SECTION 0012). It is disclosed that suitable materials as

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negative electrode active materials are lithium containing metal nitride such as  $\text{Li}_7\text{MnN}_4$  (SECTION 0006). *Thus, the molar amounts "x", "y" and 4 for N are within the claimed range.*

As to claims 4-5:

Nakura discloses the use of lithium containing metal nitride such as  $\text{Li}_7\text{MnN}_4$  (SECTION 0006). *Thus, the molar amount "y", in this instance, is 1.0.*

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the specific molar amounts within the claimed range of Nakura et al in the electrode containing a lithium metal nitride of Maeda et al because Nakura et al teach that this lithium metal nitride material having the claimed molar amounts are being currently used as negative electrode active materials because it is capable of absorbing and desorbing lithium in lithium secondary batteries, thus, serving as an alternative to other lithium metal materials. Accordingly, lithium batteries using the instant lithium metal nitride as a negative electrode active material has superior reliability and an extended cycle life. *Furthermore, since Maeda et al do suggest the interchangeably use of Mn, Ti and V as well as their equivalency for substitution purposes in lithium nitride metal compounds, Nakura et al's teachings are found to be relevant and within the same field of endeavor.*

#### ***Response to Arguments***

9. Applicant's arguments, see the amendment filed on 12/05/03 for specific details, with respect to the rejection(s) of claim(s) 1, 3-5, 16, 18-19 and 21 have been fully considered and are persuasive. Therefore, the rejection has been overcome. However, upon further consideration, a

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new ground(s) of rejection is made as seen above. Accordingly, applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro  
Examiner  
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A handwritten signature in black ink, appearing to read 'RAM', with a long horizontal line extending from the bottom right of the signature.